

**UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE**

**ECOLOGICAL SITE DESCRIPTION**

**ECOLOGICAL SITE CHARACTERISTICS**

**Site Type:** Rangeland

**Site ID:** R037XA007NM

**Site Name:** Deep Sand

**Precipitation or Climate Zone:** 7 to 10 inches

**Phase:**

## **PHYSIOGRAPHIC FEATURES**

### **Narrative:**

This upland site occurs on plateaus, mesas, and upland valley side slopes. It occupies sandy ridges, side slopes, and alluvial fans. Dunes and hummocks are common. The slopes are generally from 0 to 8 percent; however, the Sheppard loamy fine sand may be as steep as 60 percent. Elevations range from 5,000 to 6,400 feet above sea level. All exposures are involved, with no major difference in vegetation due to exposure.

### **Land Form:**

1. Mesa
2. Valley side
3. Dune

### **Aspect:**

1. N/A
- 2.
- 3.

	<b>Minimum</b>	<b>Maximum</b>
<b>Elevation (feet)</b>	5,000	6,400
<b>Slope (percent)</b>	0	60
<b>Water Table Depth (inches)</b>	24	>72
<b>Flooding:</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Frequency</b>	None	Rare
<b>Duration</b>	None	Very brief
<b>Ponding:</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Depth (inches)</b>	N/A	N/A
<b>Frequency</b>	N/A	N/A
<b>Duration</b>	N/A	N/A

### **Runoff Class:**

Negligible to medium.

## **CLIMATIC FEATURES**

### **Narrative:**

This site has an arid, mild, dry climate with distinct seasonal temperature variations and large annual and diurnal temperature changes.

Mean annual precipitation varies from 7 to 10 inches. Deviations of 4 inches or more are quite common. Distribution is 65 percent during the native plant growth period, which is from April through September. May and June are the dry months. During July, August, and September, 3.5 inches of precipitation influences the presence and production of warm-season plants. Late fall and winter moisture is conducive to the production of cool-season plants, which usually begin growth in March and end with plant maturity and seed dissemination. This usually takes place in the early part of June when the moisture deficiency and warmer temperatures occur. The Gulf of Mexico is the principal source of moisture for summer precipitation, which is characterized by brief afternoon thunderstorms. Winter moisture occurs as light rain or snow.

Temperatures vary from a mean monthly of 75 degrees F in July to 27 degrees F in January. From a maximum of 106 degrees F to a minimum of 35 degrees F below zero. The average last killing frost in the spring is May 8, and the first killing frost in the fall is October 10. The frost-free season is approximately 160 days. Temperatures are conducive for native grass and forb growth from April through September. Maximum shrub growth occurs in the spring months.

The wind blows most frequently from an easterly direction, however, a majority of the stronger winds (10 to 25 miles per hour) are from a westerly quadrant. Spring is the windiest season. Average hourly wind velocities are near 6 miles per hour. Spring and summer winds increase transpiration rates of native plants and rapidly dry the surface soil. Small soil particles are often displaced by the wind near the soil surface and often results in structural damage to native plants, especially young seedlings.

Climate data was obtained from <http://www.wrcc.sage.dri.edu/summary/climsmnm.html> web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

	<b>Minimum</b>	<b>Maximum</b>
<b>Frost-free period (days):</b>	114	151
<b>Freeze-free period (days):</b>	143	177
<b>Mean annual precipitation (inches):</b>	7	10

**Monthly moisture (inches) and temperature (°F) distribution:**

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.46	.70	12.7	43.1
February	.46	.74	18.4	50.8
March	.54	.70	22.7	60.4
April	.42	.56	29.3	70.0
May	.38	.62	37.6	79.5
June	.29	.68	46.6	90.0
July	.68	1.46	54.8	94.6
August	.79	1.83	53.1	91.8
September	.80	1.13	44.3	85.6
October	.78	1.30	31.7	72.4
November	.52	.68	20.9	56.3
December	.54	.64	12.8	46.6

**Climate Stations:**

				Period	
Station ID	291647	Location	Chaco Canyon Natl. Monument, NM	From: 06/01/22	To: 12/31/01
Station ID	293134	Location	Farmington 3NE, NM	From: 1971	To: 2000
Station ID	293340	Location	Fruitland 2E, NM	From: 01/01/14	To: 12/31/01
Station ID	296465	Location	Otis, NM	From: 02/01/14	To: 12/31/01
Station ID	298284	Location	Shiprock, NM	From: 08/01/26	To: 12/31/01

**INFLUENCING WATER FEATURES****Narrative:**

This site is not influenced by water from a wetland or stream.

**Wetland description:**

System	Subsystem	Class
N/A		

**If Riverine Wetland System enter Rosgen Stream Type:**

N/A

## **REPRESENTATIVE SOIL FEATURES**

### **Narrative:**

The soils in this site are deep, well to somewhat excessively drained, and have light colored loamy sand and loamy fine sand surfaces ranging from 5 to 10 inches thick. The underlying layers are coarse and moderately coarse textured.

These soils formed in material weathered from sandstone. Water intake rate is rapid. Permeability is moderately rapid to rapid. Roots penetrate easily. Available water-holding capacity ranges from 2.5 to 6 inches in a 5-foot profile.

**Parent Material Kind:** Eolian

**Parent Material Origin:** Sandstone-unspecified

### **Surface Texture:**

1. Loamy fine sand
2. Loamy sand
3. Very gravelly sandy loam

### **Surface Texture Modifier:**

1. Gravel
2.
3.

**Subsurface Texture Group:** Loamy

**Surface Fragments <=3" (% Cover):** 35 to 60

**Surface Fragments >3" (% Cover):** N/A

**Subsurface Fragments <=3" (%Volume):** >60

**Subsurface Fragments >=3" (%Volume):** N/A

	<b>Minimum</b>	<b>Maximum</b>
<b>Drainage Class:</b>	<b>Well</b>	<b>Excessively</b>
<b>Permeability Class:</b>	<b>Moderately slow</b>	<b>Rapid</b>
<b>Depth (inches):</b>	<b>60</b>	<b>&gt;72</b>
<b>Electrical Conductivity (mmhos/cm):</b>	<b>0.00</b>	<b>16.00</b>
<b>Sodium Absorption Ratio:</b>	<b>0.00</b>	<b>0.00</b>
<b>Soil Reaction (1:1 Water):</b>	<b>7.4</b>	<b>9.0</b>
<b>Soil Reaction (0.1M CaCl2):</b>	<b>N/A</b>	<b>N/A</b>
<b>Available Water Capacity (inches):</b>	<b>0</b>	<b>6.0</b>
<b>Calcium Carbonate Equivalent (percent):</b>	<b>N/A</b>	<b>N/A</b>

## **PLANT COMMUNITIES**

### **Ecological Dynamics of the Site:**

### **Plant Communities and Transitional Pathways (diagram)**

**Plant Community Name:** Historic Climax Plant Community

**Plant Community Sequence Number:** 1 **Narrative Label:** HCPC

**Plant Community Narrative:** Historic Climax Plant Community

The vegetative aspect of this site is a shrub/grass mixture characterized by short/mid-grasses; mid-grasses are prominent. Shrubs and perennial forbs compose 30 to 40 percent of the composition of the total vegetation. Annual forbs and grasses occur in relative abundance during spring and summer months in years of above average plant growing conditions.

Canopy Cover:

Trees and shrubs 20 %

Ground Cover (Average Percent of Surface Area).

Grasses & Forbs 15

Bare ground 50

Surface cobble and stone 0

Litter (percent) 15

Litter (average depth in cm.) 1

**Plant Community Annual Production (by plant type):** \_\_\_\_\_

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	180	330	480
Forb	45	83	120
Tree/Shrub/Vine	75	138	200
Lichen			
Moss			
Microbiotic Crusts			
Total	300	550	800

## **Plant Community Composition and Group Annual Production:**

### **Plant Type - Grass/Grasslike**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	ACHY	Indian Ricegrass	138 – 165	138 – 165
2	PLJA	Galleta	17 – 28	17 – 28
3	BOGR2	Blue Grama	28 – 55	28 – 55
4	SPCR SPCO4 SPFL2 SPGI	Sand Dropseed Spike Dropseed Mesa Dropseed Giant Dropseed	55 – 83	55 – 83
5	MUPU2	Sandhill Muhly	17 – 28	17 – 28
6	HECO26 HENE5	Needleandthread New Mexico Feathergrass	28 – 55	28 – 55
7	ELEL5	Bottlebrush Squirreltail	17 – 28	17 – 28
8	SPAI	Alkali Sacaton	28 – 55	28 – 55

### **Plant Type - Forb**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
9	SPHAE PENST OXYTR SENEC	Globemallow spp. Penstemon spp. Locoweed spp. Groundsel spp.	17 – 28	17 – 28

### **Plant Type – Tree/Shrub/Vine**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
10	EPVI	Mormon-tea	55 – 83	55 – 83
11	ATCA2	Fourwing Saltbush	55 – 83	55 – 83
12	ARFI2	Sand Sagebrush	28 – 55	28 – 55
13	CHRY5	Rabbitbrush spp.	17 – 28	17 – 28
14	KRLA2	Winterfat	17 – 28	17 – 28
15	ARTR2	Big Sagebrush	28 – 55	28 – 55
16	PUME ARNO4	Cliffrose Black Sagebrush	17 – 28	17 – 28
17	GUSA2	Broom Snakeweed	17 – 28	17 – 28
18	OPPO YUEL	Plains Pricklypear Soaptree Yucca	17 – 28	17 – 28

**Plant Type - Lichen**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

**Plant Type - Moss**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

**Plant Type - Microbiotic Crusts**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Additional plants, which usually grow on this site in varying amounts dependent on current growing season conditions are: threeawn spp., sixweeks grama, fiddleneck, annual brome grass, Russian thistle, fleabane, pale wolfberry, tansymustard, western ragweed, lambsquarters, verbena, whorled milkweed, wooly Indianwheat, and Rocky Mountain beeplant.

**Plant Growth Curves**

**Growth Curve ID** 0907NM

**Growth Curve Name:** HCPC

**Growth Curve Description:** A shrub/grassland characterized by short/mid-grasses with a major perennial forb component.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	5	7	10	10	25	30	10	3	0	0

## **ECOLOGICAL SITE INTERPRETATIONS**

### **Animal Community:**

Habitat for Wildlife:

This ecological site provides habitats which support a resident animal community that is characterized by badger, kit fox, desert cottontail, Ord's kangaroo rat, northern grasshopper mouse, scaled quail, mourning dove, Woodhouse's toad, lesser earless lizard and prairie rattlesnake.

While not residents, pronghorn antelope and mule deer will move out of adjacent habitats to feed on this site.

### **Hydrology Functions:**

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

#### **Hydrologic Interpretations**

<b>Soil Series</b>	<b>Hydrologic Group</b>
Bluewing	B
Bluewing Saline	D
Calladito	A
Mayqueen	B
Sheppard	A
Shiprock	B
Stumble	A

### **Recreational Uses:**

No Data

### **Wood Products:**

No Data

**Other Products:****Grazing:**

This site is suitable for grazing use by cattle, sheep, horses, antelope, burros and small herbivorous animals. Various birds use this site for food and shelter.

Under the pressure of uncontrolled grazing, the potential plant community deteriorates; there is a marked increase in relative abundance of shrubs, cacti, and perennial forbs. The density of perennial palatable grasses will decrease and there will be an increase in the density of forbs and annual plants. This results in unprotected soil during part of the year, which increases the wind erosion hazard. In severe deterioration, the site will consist dominantly of shrubs, sandhill muhly, some perennial forbs, and large areas of unprotected soil; juniper may invade this site.

**Other Information:****Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month****Similarity Index****Ac/AUM**

100 - 76

6.0 – 14.0

75 – 51

8.0 – 18.0

50 – 26

14.0+

25 – 0

18.0++

Plant Part	Code	Species Preference	Code
Stems	S	None Selected	NS
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruits/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

**Plant Preference by Animal Kind:**

**Animal Kind:** Livestock  
**Animal Type:** Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	P	P	P	P	P	P	P
Blue Grama	Bouteloua gracilis	EP	D	D	D	D	P	P	P	P	P	D	D	D
Alkali Sacaton	Sporobolus airoides	EP	D	D	D	D	D	P	P	P	U	U	U	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Giant Dropseed	Sporobolus giganteus	EP	U	U	U	D	D	D	D	D	D	U	U	U

**Animal Kind:** Livestock  
**Animal Type:** Horses

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	P	P	P	P	P	P	P
Blue Grama	Bouteloua gracilis	EP	D	D	D	D	P	P	P	P	P	D	D	D
Alkali Sacaton	Sporobolus airoides	EP	D	D	D	D	D	P	P	P	U	U	U	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Giant Dropseed	Sporobolus giganteus	EP	U	U	U	D	D	D	D	D	D	U	U	U

**Animal Kind:** Livestock  
**Animal Type:** Sheep

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	D	D	D	D	D	D	P
Alkali Sacaton	Sporobolus airoides	EP	U	U	U	U	U	D	D	D	U	U	U	U
Winterfat	Krascheninnikovia lanata	L/S	P	P	P	P	P	P	P	P	P	P	P	P
Fourwing Saltbush	Atriplex canescens	L/S	P	P	P	P	P	D	D	D	D	D	D	P
Sand Dropseed	Sporobolus cryptandrus	EP	U	U	U	U	D	D	D	U	U	U	U	U

## **SUPPORTING INFORMATION**

### **Associated sites:**

Site Name	Site ID	Site Narrative

### **Similar sites:**

Site Name	Site ID	Site Narrative

### **State Correlation:**

This site has been correlated with the following sites: \_\_\_\_\_

### **Inventory Data References:**

Data Source	# of Records	Sample Period	State	County

### **Type Locality:**

State: New Mexico

County: San Juan

Latitude: \_\_\_\_\_

Longitude: \_\_\_\_\_

Township: 27 N

Range: 11 W

Section: 16

Is the type locality sensitive?    Yes ☐        No ☐

General Legal Description:    A typical pedon of Sheppard loamy fine sand in San Juan County, New Mexico, on a ridge 2,045 feet south and 725 feet east of the northeast corner of section 16, T. 27 N., R. 11 W.

### **Relationship to Other Established Classifications:**

### **Other References:**

Data collection for this site was done in conjunction with the progressive soil surveys within the San Juan River Valley, Mesas and Plateaus 37 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: San Juan, McKinley.

### **Characteristic Soils Are:**

Sheppard, Mayqueen, Shiprock, Stumble

### **Other Soils included are:**

Bluewing

Calladito

### **Site Description Approval:**

#### **Author**

Don Sylvester

#### **Date**

03/06/79

#### **Approval**

Don Sylvester

#### **Date**

03/06/79

### **Site Description Revision:**

#### **Author**

Elizabeth Wright

#### **Date**

07/08/02

#### **Approval**

George Chavez

#### **Date**

2/12/03